

FUEL EFFICIENCY CASE STUDY

REDUCED RUNNING COSTS

NATIONAL SAND AND GRAVEL QUARRY



150SL RUNNING COST CASE STUDY



The client, a national sand and gravel quarry, approached Pioneer with the aim of reducing their running costs across the three pumps that they currently had in place on their site.

CUSTOMER CHALLENGE

Due to the ever increasing cost of fuel across the country and changes in legislation regarding red diesel, the client contacted Pioneer Pump with the ambition of reducing their running at their sand and gravel quarry.

The site consisted of two Pioneer Pumps and two similar models from a competitor.

Pioneer's objective was to reduce the running costs for the client whilst maintaining the existing performance of the pumps already on site.

THE SOLUTION

A Pioneer 6" 150SL was situated at the bottom of the dig, this unit removes water from the bottom of the dig proceeding into a ditch which then naturally allows the water to flow off site. Due to the nature of the application, a high volume of water needs to be pumped to move both groundwater and rainfall meaning a reduction in pump size was not possible. Pioneer identified that the pump suction had been filled with stones and clay thus creating blockages and reducing the efficiency of the pump. By installing a fine mesh strainer, down time from blockages was minimised increasing site efficiency. The Pioneer pump is also able to operate at variable speeds allowing the engine to be reduced to 1400rpm whilst still maintaining adequate flow rates and thus reducing fuel consumption to as little

as 3l/h. Equating to approximately 86 hours of run time on one tank of fuel, considerably increasing the time between refueling and reducing long term running costs. The competitor's pump was limited to a fixed speed meaning no adjustments to the flow were possible, which can cause excess fuel usage when conditions are dry. The competitor's pump that was in place as a back-up pump was subsequently off-hired further reducing costs.

Similarly to the dig site, the silt discharge was also being pumped by a Pioneer 150SL. This was situated at the bottom of a slope, pumping silty water from a ditch into the settlement area and is fed by the pump from the dig site. To be able to provide a reduction in running costs, float switches were recommended so the pump would only run when the water level reaches a specific level, preventing the pump from running unnecessarily and therefore reducing fuel wastage.

The fresh water feed was being pumped by a competitor's equivalent to the Pioneer 150SL, however at a significantly reduced flow rate and considerably higher fuel burn.

Pioneer advised replacing the competitor's pump with a 150SL running at 1500rpm which would provide nearly triple the flow rate per litre of fuel, over halving the cost of running each week thus saving the customer £340 across a standard 40 hour working week, and up to £11500 per year!

REDUCED RUNNING COSTS

INCREASED EFFICIENCY

PUMP FEATURES

- Fine Mesh strainers to prevent blockages
- Float switches installed to allow for automatic reaction to increased water levels

PERFORMANCE DETAILS

- 400m³/hr flow rate
- 133m³ flow rate per litre of fuel
- Average of 80 hours between refuelling

RESULTS

- Running costs halved
- Increased times between refuelling
- Higher flow rate per litre of fuel